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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PAYNE, DAVID C

ART UNIT PAPER NUMBER

2638

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/014,353

Applicant(s)

ROBERTS ET AL.

Examiner

David C. Payne

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7,8,10-15 and 26-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 32 and 34 is/are rejected.
- 7) ☒ Claim(s) 7,8,10-15,26-31,33 and 35 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 32 and 34 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 32 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chraplyvy et al. US 6381048 B1 (Chraplyvy).

Re claims 32 and 34, Chraplyvy disclosed a method transmitting a WDM signal, scrambling each signal with a unique scrambling pattern so as to de-correlate the signals, as well as transmitters.

With reference to FIG. 2, the delay circuits 110 may, illustratively, be implemented, as decorrelation circuits. The decorrelation circuit includes a demultiplexer 201, a different length of fiber 202 for each wavelength, and a multiplexer 203. The WDM signal is demultiplexed and each wavelength channel is delayed so that adjacent channels have a non-integral number of bit walk-throughs in the amplifier span (amplifier plus fiber plus delay circuit) (as will be discussed in a later paragraph). This delay is produced by using a different length of fiber for each wavelength. Since each wavelength is delayed by a different amount, the channel modulations are decorrelated when they are recombined in multiplexer 203. As a result, resonances in the CPM may be significantly reduced in the WDM signal. The multiplexer 203 and demultiplexer 201 may be implemented using a variety of well known circuits including a Mach-Zehnder interferometer, a waveguide grating router (WGR), etc. (Col. 5 paragraph beginning at line 55.)

To isolate CPM and understand the resonances, we used a simple illustrative two-channel system, shown in FIG. 4. The setup included a transmitter unit 400, optical fiber span unit 407,

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and a receiver unit 420. The transmitter unit 400 contained a weak probe channel 401, -10 dBm, and used a pump channel 402 having 10-dB higher power to represent the remaining channels in a multi-channel system. The 1555-nm probe channel 401 wavelength was fixed, while the pump channel 402 wavelength was scanned. The two channels were combined, in combiner 403, and modulated, in modulator 404, using a 2.5-Gb/s NRZ (2.sup.31 -1 PRBS) data signal 403a. The output of the modulator 404 then passed through a phase modulator 405 driven at 50 MHz and 155 MHz for stimulated Brillouin scattering (SBS) suppression. An adjustable, differential time delay 406 decorrelated the channel modulations, and the pump channel 402 was polarization scrambled. The time delay 406 was implemented (in a similar manner as the apparatus of FIG. 2) using a demultiplexer 410, a variable delay 411, and scrambler 412 for the pump channel, and a multiplexer 413 to recombine the probe and pump channels. The use of polarization scrambler 412 and its inclusion in the adjustable, differential time delay 406 were matters of experimental convenience. (Col. 6 paragraph beginning at line 64.)

Mendez is not explicit that the scrambling is de-correlated at any given offset, however it would have been obvious to one of ordinary skill in the art at the time of invention since the signals are delayed by different amounts.

Allowable Subject Matter

4. Claims 7,8,10-15,26-31, 33 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion


5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Payne whose telephone number is (571) 272-3024. The examiner can normally be reached on M-F, 7:00a - 4:30p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dcp


David C. Payne
Primary Examiner
AU 2633